N° 2614 A.D. 1894

Date of Application, 6th Feb., 1894
Complete Specification Left, 29th Sept., 1894—Accepted, 3rd Nov., 1894

PROVISIONAL SPECIFICATION.

Improvements in Dental Clamps.

I Joseph Milton Strout of 457½ Congress, in the County of Cumberland and State of Maine, United States of America, Dentist, do hereby declare the nature of this invention to be as follows :—

My invention has for its object to provide a dental clamp adapted to be used upon any tooth of an upper or a lower set, and capable of being expeditiously and conveniently applied and removed, the construction of the clamp being such that while effectually holding the rubber dam in position and pressing the gum from the neck of a tooth so as to expose a cavity well down in the neck it will in no way interfere with the movements of the operator.

The clamp consists of a body and an extension arm together with a fastening device connecting the two. The body consists of a metal plate bent upon itself to form essentially a **U** in cross section, the members of the body being carried inward towards each other to form side flanges. The side and bottom portions of the body are therefore entirely open. This is preferably made of spring metal and the body is adapted to fit over a tooth covering the crown and extending down opposite sides of the tooth practically to the gum. The arm forming an extension of the body is provided with a longitudinal slot and it is connected to the body by a screw stud which projects from the body and passes through the slot, being secured therein by a nut which holds the arm firmly in place when tightened, but when loosened permits of ready adjustment of the arm either to lengthen or shorten it or otherwise. The arm is provided with a finger piece either integral therewith or pivotally connected thereto. The outer extremity of the finger section, when the finger is to be applied to certain teeth, is made to terminate in two claws, bent upon opposite portions so as to stand at angles to the finger, or diagonally thereof, and the surface of the finger connecting the two claws is rendered more or less concave.

In the operation of the clamp the rubber dam is placed in the mouth of the patient and the body of the clamp is placed over a tooth removed a convenient distance from the tooth to be operated upon. The arm is then adjusted in a manner which will cause the claw portion of the finger section of the arm to engage with the rubber dam at the neck of the tooth to be operated upon, and the arm is then pressed downward or upward as required, until the dam and the gum have been pressed one toward and the other from the neck of the tooth to expose the cavity to be operated upon. The nut is then screwed up until the tension arm is held firmly in the position in which it was placed, and consequently the dam and gum will be held away from the cavity until the clamp is removed.

One face of the claw section of the arm is concaved, said concavity when the clamp is integral with the arm serving to remove said arm the greatest possible distance from the cavity, permitting the free use of the instruments.

It will be observed that the clamp is in no manner in the way of the operator and that it may be expeditiously and conveniently applied to any tooth of either the upper or the lower set ; furthermore, that the shape of the extension arm may be changed in order that the outer faces of the teeth may be treated. In fact, extension arms of various shapes may be used in connection with the same body, or a screw and nut may be attached to both sides of the body of the clamp, in order that two arms may be attached at the same time, to be used in setting artificial crowns upon natural roots.

The claw sections of the arm may be pivotally connected with the arms or finger sections thereof, and at more or less of a right angle to the said finger sections. Such construction is often desirable, as it enables the claw sections to be brought in engagement with teeth which could not be so conveniently reached when the claw and arm are in one piece.

The clamp may be provided with a spring yoke attached to the body of the device. When this yoke is employed a sleeve is screwed upon a stud of the clamp body, and the yoke, which consists of a flat spring section and a threaded rod section attached to one end, is placed in position by passing the threaded rod section of the yoke through a suitable aperture in the sleeve and placing a nut upon the free end of the said screw section. The spring section of the yoke is provided with a series of apertures, and after the spring section, for example, has been passed to an engagement with one side of a tooth, one of the apertures is made to receive the opposite screw of the body of the clamp, and the nut is then applied. The yoke may be used as a matrix, or it may be used as a temporary wall for certain cavities, as for example, when a cavity extends through a tooth from one side to the other the yoke may be made to close one end of the cavity, enabling the operator to fill said cavity and pack the material against the yoke.

If in practice it is found desirable the claw section may be provided with longitudinal slots and be constructed of a spring material, and the said claw section may be given more or less of a shovel shape.

Dated this 6th day of February 1894.

J. M. STROUT,
By A. M. & Wm. Clark,
53, Chancery Lane, London, Chartered Patent Agents.

COMPLETE SPECIFICATION.

Improvements in Dental Clamps.

I, Joseph Milton Strout, Dentist, of 457½ Congress, in the County of Cumberland, and State of Maine, United States of America, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention has for its object to provide a dental clamp adapted to be used upon any tooth of an upper or lower set, and capable of being expeditiously and conveniently applied and removed, the construction of the clamp being such that while effectually holding the rubber dam in position and pressing the gum from the neck of a tooth so as to expose a cavity well down in the neck, it will in no way interfere with the movements of the operator.

Reference is to be had to the accompanying drawings, forming a part of this Specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a partial inner plan view of an upper set of teeth, illustrating the application of the improvement thereto.

Figure 2 represents a section through a mouth, shewing a portion of the lower set of teeth in elevation and the application of the invention.

Figure 3 is a partial perspective view of a lower set of teeth, illustrating the application of a slightly modified form of the invention.

Figure 4 is a view somewhat similar to Figure 3, illustrating the application of a slightly different form of the device, one capable of use in connection with the outer surfaces of the front upper teeth.

Figure 5 is a detail view of the body of the clamp in position upon a tooth; and

Figure 6 is a sectional view through the body of the clamp, the section being taken practically on the line 6—6 of Figure 1.

The clamp consists of a body A, an extension arm B, and a fastening device C whereby the arm is adjustably connected with the body. All the parts are preferably made of metal, but any other material may be employed. The body consists of a plate of metal bent upon itself to form essentially a **U** in cross-section, and the members of the body are carried inward in direction of each other forming side flanges 10, as shewn in Figures 5 and 6. The side and bottom portions of the body are, therefore, entirely open. The body of the clamp is made of spring metal and is adapted to be fitted over a tooth, covering the crown thereof and extending down opposite sides of the tooth practically to the gum; and since the body is constructed of spring material it can be attached to a molar with as much facility as to a bicuspid. At one or both sides of the body of the clamp a threaded stud 11 is located, extending preferably at a right angle to the body, and upon one of the studs a nut 12 is screwed, which nut may be roughened so as to be turned by hand, or it may be provided with a number of apertures to receive a small drill, a pin, or like object, whereby it may be more expeditiously handled and more securely fixed in place.

The arm B forming an extension of the body of the clamp, consists of a flat body 14 provided with a longitudinal slot 15 which slot is ordinarily of nearly the full length of the body. From the body a finger section 16 is projected, the two parts being integral, as shewn in Figures 1, 2, and 3, or pivotally connected, as illustrated in Figure 4. The finger section may be made straight or curved to a greater or less degree, its longitudinal shape being governed by the position of the tooth to be operated upon. The outer extremity of the finger section, when the finger is to be applied to certain teeth, is made to terminate in two claws 18 and 19 bent upon opposite portions so as to stand at angles to the finger, or diagonally thereof, as illustrated in Figures 1 and 2, and the surface of the finger connecting the two claws is rendered more or less concave. The extension arm is connected with the body of the clamp A by causing the screw 11 to pass through the slot 15 in the body of the extension arm and when the nut 12 is placed upon the screw and turned in one direction the arm may be freely moved upon said screw in a manner to lengthen or shorten it, or adjust it vertically or laterally. When a proper adjustment is made the arm is held firmly in position by turning the nut 12 until it firmly engages with the arm and clamps it to place.

In the operation of the clamp, the rubber dam 20 is placed in the mouth of the patient and the body of the clamp is placed over a tooth removed a convenient distance from the tooth to be operated upon. The arm is then adjusted in a manner which will cause the claw portion of the finger section of the arm to engage with the rubber dam at the neck of the tooth A^1 to be operated upon, and the arm is then pressed downward or upward as required, until the dam and the gum have been pressed one toward, and the other from, the neck of the tooth to expose the cavity a^1 to be operated upon. The nut 12 is then screwed up until the tension arm is held firmly in the position in which it was placed and consequently the dam and gum will be held away from the cavity until the clamp is removed.

One face of the claw section of the arm is concaved, said concavity, when the clamp is integral with the arm, serving to remove said arm the greatest possible distance from the cavity, permitting the free use of the instruments. It will be observed that the clamp is in no manner in the way of the operator and that it may be expeditiously and conveniently applied to any tooth of either the upper or the lower set; furthermore, that the shape of the extension arm may be changed in order that the outer faces of the teeth may be treated. In fact, extension arms of various shapes may be used in connection with the same body, or a screw and nut may be attached to both sides of the body of the clamp, as shewn in Figure 6, in order that two arms may be attached at the same time, to be used in setting artificial crowns upon natural roots.

In Figures 3 and 4 the claw sections of the arm are illustrated as pivotally connected with the arms or finger sections thereof, and as standing at more or less of a right angle to the said finger sections. Such construction is often desirable, as it enables the claw sections to be brought in engagement with teeth which could not be so conveniently reached when the claw and arm are in one piece.

In Figure 4 I have illustrated the body of the arm as pivotally connected with the finger. Such form of the device is used with good effect upon the front teeth of either the upper or the lower set, especially the upper set.

In Figure 1 I have illustrated the attachment to the body A of the clamp of a spring yoke 21. When this yoke is employed, a sleeve 22 is screwed upon one stud 11 of the clamp body and the yoke, which consists of a flat spring section and a threaded rod section attached to one end, is placed in position by passing the threaded rod section 23 of the yoke through a suitable aperture in the sleeve and placing upon the free end of the said screw section a nut 24. The spring section 25 of the yoke is provided with a series of apertures, and after the spring section, for example, has been passed to an engagement with one side of a tooth, one of the apertures is made to receive the opposite screw 11 of the body of the clamp and the nut 12 is then applied. The yoke 21 may be used as a matrix, or it may be used as a temporary wall for certain cavities, as for example, when a cavity extends through a tooth from one side to the other the yoke may be made to close one end of the cavity, enabling the operator to fill said cavity and pack the material against the yoke.

If in practice it is found desirable, the claw section may be provided with longitudinal slots and be constructed of a spring material and the said claw section may be given more or less of a shovel shape.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is :—

1. A dental clamp, substantially as herein shewn and described.
2. A dental clamp adapted to engage one tooth and provided with an extension arm adapted to engage with its free end a tooth other than the one engaged by the said clamp, substantially as set forth.
3. A dental clamp, the same consisting of a yoke-like body and an extension arm adjustably connected with the body, the said arm terminating in a claw, as and for the purpose set forth.
4. As an improved article of manufacture, a dental clamp, the same consisting of a yoke-like body and an extension arm adjustably connected with said body, the said arm terminating in claws having outward inclination as and for the purpose set forth.
5. A dental clamp, the same consisting of a yoke-like spring body and an extension arm adjustably attached to the body and projecting laterally therefrom, the outer extremity of said arm being at an angle to the body and shaped to embrace the neck of the tooth, as and for the purpose specified.
6. As an improved article of manufacture, a dental clamp, the same consisting of a yoke-like spring body, a locking device carried by the body, and an arm adjustably located between the clamping device and the body and adapted to be acted upon by the same, the outer extremity of which arm is at an angle to the body and shaped to embrace the neck of a tooth other than that acted upon by the clamp, as and for the purpose specified.

Dated this 27th day of September 1894.

A. M. & WM. CLARK,
53, Chancery Lane, London, Chartered Patent Agents.

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STROUT'S Complete Specification.

(1 SHEET)

Fig. 1.

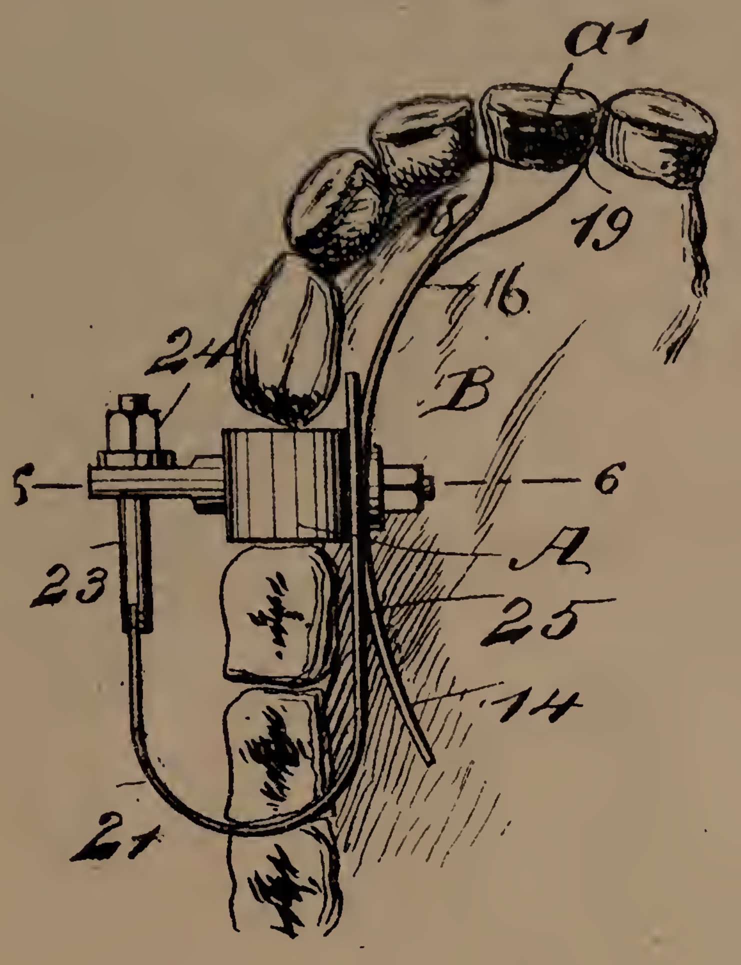


Fig. 2.

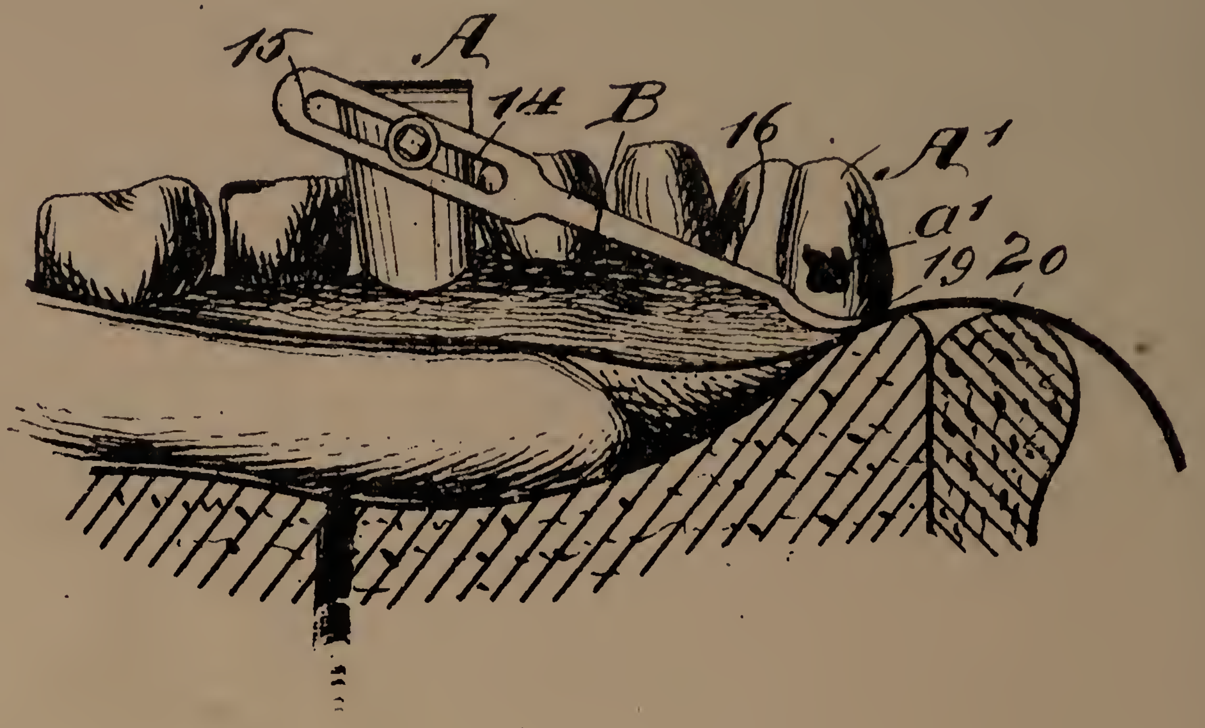


Fig. 3.

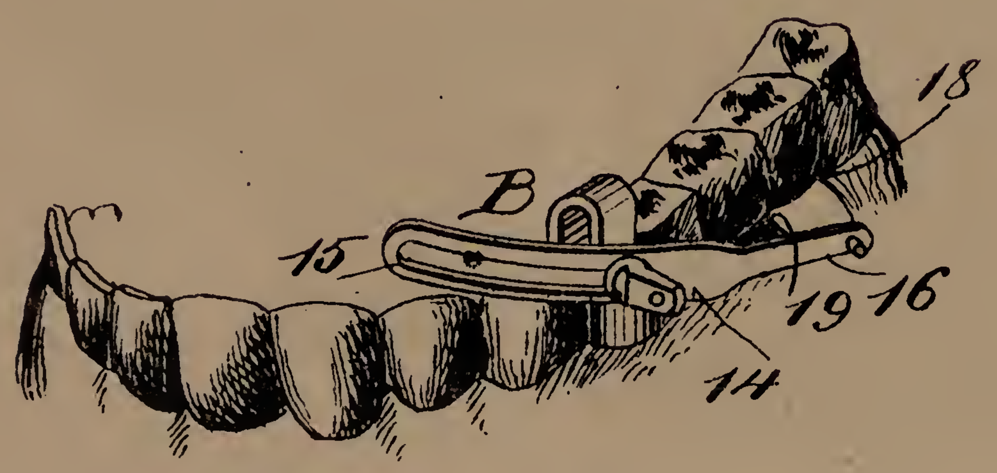


Fig. 4.

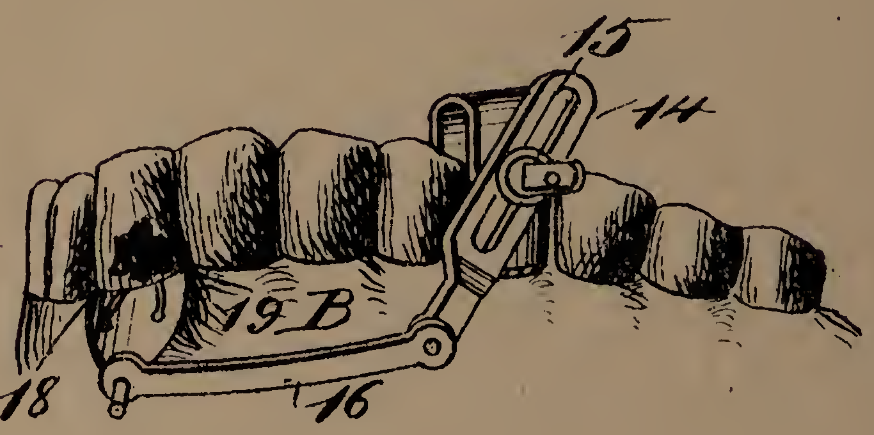


Fig. 5.

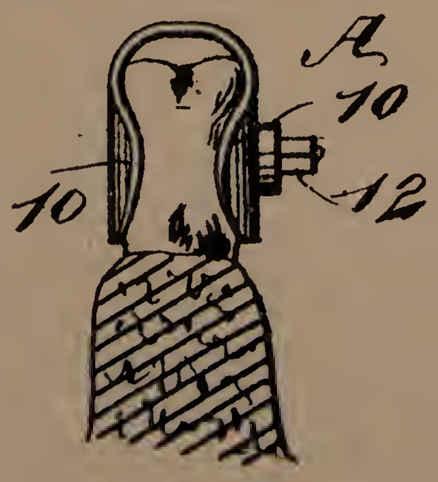
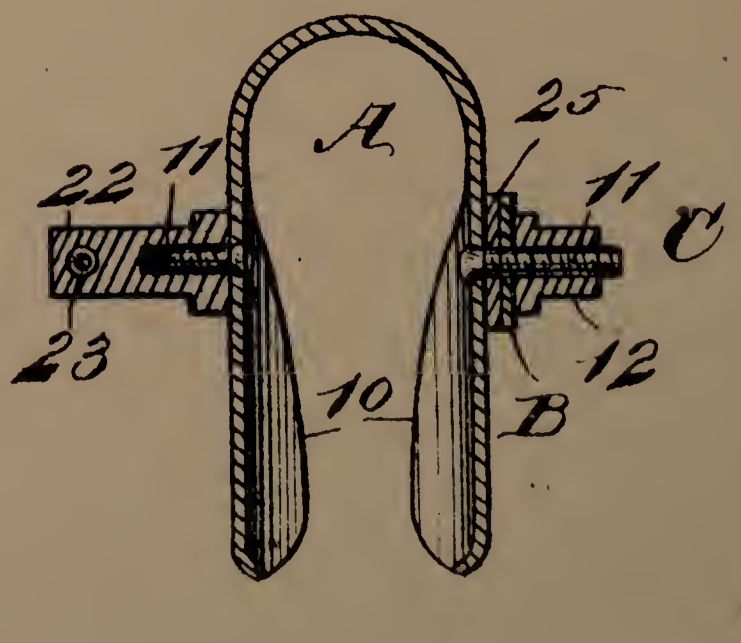


Fig. 6.



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